CLAIMS

What is claimed is:

1   1.   A method of forwarding data packets in a network device having an operating system,

2   the method comprising:

3   initiating a switching microdriver to retrieve a data packet; and

4   forwarding the data packet to or from the switching microdriver without involvement

5   of the operating system.

1   2.   The method of claim 1 further comprising performing switching functions by the

2   switching microdriver to forward the data packet.

1   3.   The method of claim 2 wherein performing switching functions by the switching

2   microdriver to forward the data packet includes making any one of a layer 2 and a layer 3

3   switching decision in the switching microdriver.

1   4.   The method of claim 3 further comprising forwarding the data packet to a network

2   interface microdriver.

1   5.   The method of claim 1 wherein no context switching is performed by the operating

2   system in conjunction with forwarding the data packet to or from the switching microdriver.

1   6.   The method of claim 4 further comprising forwarding the data packet to a network

2   interface microdriver.

1   7.   The method of claim 1 wherein no context switching is performed by the operating

2   system in conjunction with forwarding the data packet to or from the switching microdriver,

3   the method further comprising performing switching functions by the switching microdriver

4   to forward the data packet.

1   8.   The method of claim 1 wherein forwarding the data packet to or from the switching

2   microdriver includes receiving the data packet from a network interface microdriver.

1   9.   The method of claim 1 wherein the switching microdriver may perform the functions

2   of a network interface driver for the operating system and may perform the functions of a

3   network interface microdriver without involvement of the operating system.

1   10.   A method of forwarding data packets in a network device having an operating system,

2   the method comprising:

3   indicating that a data packet has been received by a component of the network device

4   from a network interface port;

5   initiating a first network interface microdriver to process the data packet;

6   receiving the data packet at the first network interface microdriver from the

7   component of the network device; and

8   sending the data packet from the first network interface microdriver to a switching

9   microdriver without involvement of the operating system.

1   11. The method of claim 10 further comprising forwarding the data packet from the

2   switching microdriver to a selected location without involvement of the operating system.

1   12. The method of claim 11 wherein involvement of the operating system comprises the

2   operating system performing a context switch.

1   13. The method of claim 11 wherein involvement of the operating system comprises the

2   operating system initiating an interprocess communication facility.

1   14. The method of claim 11 wherein the selected location is a second network interface

2   microdriver.

1   15. The method of claim 11 wherein forwarding the data packet from the switching

2   microdriver to a selected location without involvement of the operating system includes

3   making any one of a layer 2 and a layer 3 switching decision in the switching microdriver.

1   16. The method of claim 11 wherein the switching microdriver may perform the functions

2   of a network interface driver for the operating system and may perform the functions of a

3   network interface microdriver without involvement of the operating system.

1   17. A method of forwarding data packets in a network device having an operating system,

2   the method comprising:

3   forwarding a data packet at the device driver layer in the network device, without the

4   operating system performing context switching in conjunction with forwarding the data

5   packet.

1   18.   The method of claim 17 further comprising:

2   indicating that the data packet has been received by a component of the network

3   device from a network interface port;

4   initiating a first network interface microdriver to process the data packet;

5   receiving the data packet at the first network interface microdriver from the

6   component of the network device; and

7   sending the data packet from the first network interface microdriver to a switching

8   microdriver.

1   19.   The method of claim 18 further comprising forwarding the data packet from the

2   switching microdriver to a selected location.

1   20.   The method of claim 19 wherein the selected location is a second network interface

2   microdriver.

1   21.   The method of claim 19 wherein forwarding the data packet from the switching

2   microdriver to a selected location includes making any one of a layer 2 and a layer 3

3   switching decision in the switching microdriver.

22.   A machine-readable medium that provides instructions, which when executed by a processor, cause said processor to perform operations comprising:

        initiating a switching microdriver to retrieve a data packet; and

        forwarding the data packet to or from the switching microdriver without involvement of the operating system.

23.   The machine-readable medium of claim 22 wherein said instructions cause said processor to perform operations further comprising switching functions by the switching microdriver to forward the data packet.

24.   The machine-readable medium of claim 23 wherein performing switching functions by the switching microdriver to forward the data packet includes making any one of a layer 2 and a layer 3 switching decision in the switching microdriver.

25.   The machine-readable medium of claim 24 wherein said instructions cause said processor to perform operations further comprising forwarding the data packet to a network interface microdriver.

26.   The machine-readable medium of claim 22 wherein no context switching is performed by the operating system in conjunction with forwarding the data packet to or from the switching microdriver.

1   27.   The machine-readable medium of claim 25 wherein said instructions cause said

2   processor to perform operations further comprising forwarding the data packet to a network

3   interface microdriver.

1   28.   The machine-readable medium of claim 22 wherein no context switching is performed

2   by the operating system in conjunction with forwarding the data packet to or from the

3   switching microdriver, said processor further performs switching functions by the switching

4   microdriver to forward the data packet.

1   29.   The machine-readable medium of claim 22 wherein forwarding the data packet to or

2   from the switching microdriver includes receiving the data packet from a network interface

3   microdriver.

1   30.   The machine-readable medium of claim 22 wherein the switching microdriver in a

2   first instance performs the functions of a network interface driver for the operating system and

3   in a second instance performs the functions of a network interface microdriver without

4   involvement of the operating system.

1   31.   A system comprising:

2   an interprocess communication facility comprising an operating system aware portion

3   and a non-operating system aware portion;

4   a switching microdriver coupled to said interprocess communication facility to

5   perform switching decisions without using an operating system aware portion of said

6   interprocess communication facility;

7   a network microdriver coupled to said switching microdriver; and

8   a physical port coupled to said network microdriver.

1   32.   The system of claim 31 wherein said switching microdriver retrieves a data packet and

2   forwards said data packet to or from said switching microdriver without involvement of said

3   operating system.

1   33.   The system of claim 32 wherein said switching microdriver performs switching

2   functions to forward the data packet.

1   34.   The system of claim 33 wherein said switching microdriver performs switching

2   functions to forward said data packet including making any one of a layer 2 and a layer 3

3   switching decision in said switching microdriver.

1   35.   The system of claim 32 wherein no context switching is performed by said operating

2   system in conjunction with forwarding said data packet to or from said switching microdriver.

1   36.   The system of claim 32 wherein no context switching is performed by said operating

2   system in conjunction with forwarding said data packet to or from said switching microdriver

3   and said switching microdriver performs switching functions to forward the data packet.

1   37.   The system of claim 34 wherein said switching microdriver forwards said data packet

2   to said network interface microdriver.

1   38.   The system of claim 35 wherein said switching microdriver forwards the data packet

2   to said network interface microdriver

1   39.   The system of claim 32 wherein forwarding the data packet to or from the switching

2   microdriver includes receiving the data packet from a network interface microdriver.

1   40.   The system of claim 32 wherein said switching microdriver in a first instance performs

2   the functions of a network interface driver for the operating system and in a second instance

3   performs the functions of a network interface microdriver without involvement of the

4   operating system.